

# Social and Economic Determinants of Birth Rates in 2023: A Cross-Country Linear Regression Analysis



## “LifePulse: The Heartbeat of Global Fertility”

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### ABSTRACT

IN 2023, CROSS-COUNTRY BIRTH RATE DIFFERENCES ARE MAINLY EXPLAINED BY DEMOGRAPHIC FACTORS, WHILE ECONOMIC INDICATORS SHOW NO INDEPENDENT EFFECT. THIS SUGGESTS FERTILITY POLICIES SHOULD FOCUS ON LONG-TERM DEMOGRAPHIC STRATEGIES.

### RESEARCH PROBLEM

“WHAT DRIVES THE RISE AND FALL OF BIRTH RATES IN 2023?”

BIRTH RATES VARY WIDELY DUE TO THE INTERACTION OF KEY SOCIAL FACTORS AND ECONOMIC CONDITIONS, SHAPING POLICIES ON POPULATION GROWTH, HEALTH (SDG 3), ECONOMIC STABILITY (SDG 8), AND INEQUALITY REDUCTION (SDG 10).

### DATASET AND REGRESSION APPROACH

YEAR: 2023  
SAMPLE: 65 COUNTRIES  
SOURCE: OUR WORLD IN DATA (OWID)  
(AGGREGATES WORLD BANK, IMF, PENN TABLE)

#### SOCIAL / DEMOGRAPHIC FACTORS

- AVERAGE AGE OF MOTHERS
- AGE DEPENDENCY RATIO
- CHILD MORTALITY RATE
- CRUDE DEATH RATE

#### ECONOMIC / FISCAL FACTORS

- GDP PER CAPITA
- GOVERNMENT REVENUE
- GOVERNMENT CONSUMPTION SPENDING

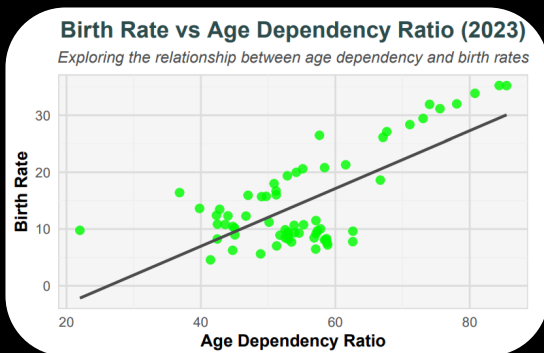
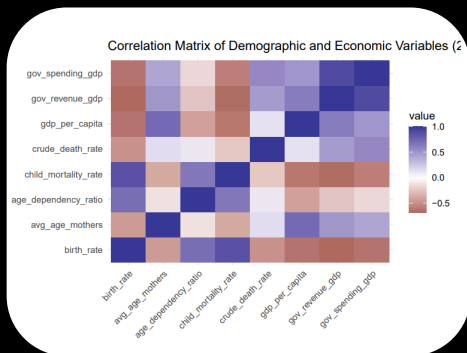
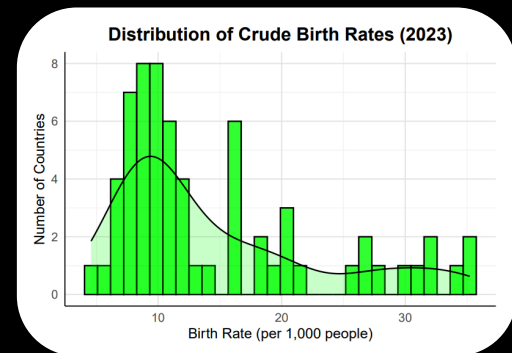
#### ROBUSTNESS

- SCALE-LOCATION PLOTS SHOW HETEROSKEDASTICITY
- BREUSCH-PAGAN TEST  $P = 0.170$
- HC1 ROBUST STANDARD ERRORS APPLIED
- ENSURES VALID INFERENCE

CRUDE BIRTH RATE (CBR) – BIRTHS PER 1,000 POPULATION

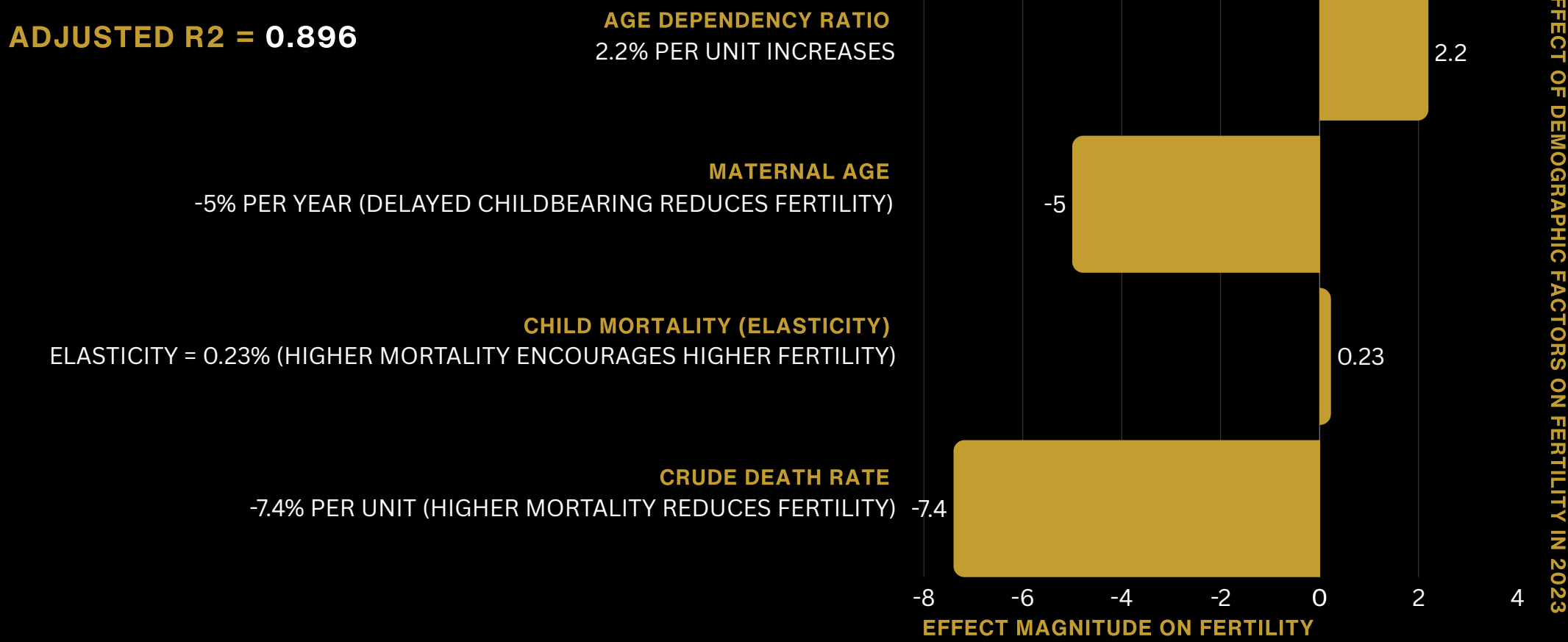
ECONOMETRIC MODEL: LOG-LINEAR OLS REGRESSION

### LINEAR REGRESSION MODELS



### KEY FINDINGS

FERTILITY DIFFERENCES IN 2023 ARE MAINLY DRIVEN BY DEMOGRAPHIC STRUCTURE AND MORTALITY, WITH ECONOMIC FACTORS SHOWING LITTLE EFFECT, AND THE MODEL EXPLAINING ABOUT 90% OF FERTILITY VARIATION.



### LIMITATIONS AND FUTURE DIRECTIONS



### IMPLICATIONS

FERTILITY POLICY SHOULD PRIORITISE DEMOGRAPHIC AND HEALTH STRUCTURES, AS SHORT-TERM FISCAL MEASURES ALONE HAVE LIMITED IMPACT ON FERTILITY.

### PROJECT DEVELOPMENT CYCLE

DATA COLLECTION >> VARIABLES & TRANSFORMATION >> MODEL SPECIFICATION >> ROBUSTNESS & VALIDATION >> REGRESSION OUTPUT & INTERPRETATION

